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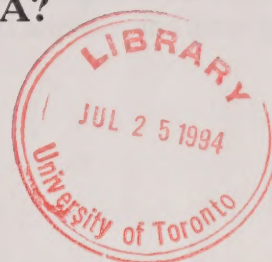
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WHAT IS HAPPENING TO WEEKLY HOURS WORKED IN CANADA?

by
René Morissette
Deborah Sunter*

No. 65



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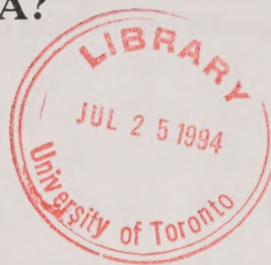
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WHAT IS HAPPENING TO WEEKLY HOURS WORKED IN CANADA?

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ABSTRACT

During the eighties, the dispersion of weekly hours increased in Canada for men but not for women. For both men and women, weekly hours have become more dispersed in full-time jobs. The dispersion of weekly hours has not risen at the aggregate level among women because women employed part-time increased their weekly hours relative to those employed full-time during the second half of the eighties. Between 1981 and 1993, the percentage of individuals working standard workweeks fell and the proportion of individuals working either short or long hours increased for both sexes. The shift towards both short and long hours persists regardless of macroeconomic conditions. The movement towards long hours is more pronounced among men aged 25 or more than among their younger counterparts. It is also greater among highly educated workers than among low-educated workers. It is observed in most industries but not in all occupations. Long hours have become more important among managers but also among men employed in sales, among women employed in natural and social sciences and among individuals working in processing-related occupations.

Key words : Hours worked ; Inequality ; Dispersion ; Workweek.

Introduction

During the eighties, the distribution of **annual** earnings became more unequal in Canada for men and for full year full-time workers. In a recent study, Morissette, Myles and Picot (1993) show that the growth in dispersion of **annual** hours worked underlie most of the rise in earnings inequality observed among the subset of workers holding the same full-time job all year. For these workers, movements in annual hours merely reflect changes in the number of hours worked per week. Thus, this finding suggests that the growing dispersion of **weekly** hours is an important factor behind the rise of earnings inequality.

While the rise of part-time employment is well documented [e.g. Economic Council (1991)] and while some attention has been paid to individuals working 50 hours or more per week [Van Cleeff (1985), Gower (1986)], no study has been done so far to check whether the dispersion of (or inequality in) weekly hours has increased during the eighties in Canada.

One goal of this paper is to fill this gap. Using data from the Labour Force Survey, we document the magnitude and the timing of the changes in dispersion of weekly hours which took place between September 1976 and September 1993. Our results show that, since the beginning of the eighties, the dispersion of weekly hours has increased for men but not for women. However, the dispersion of weekly hours has risen in full-time jobs for both men and women. Most important, fewer men and women were working standard workweeks and more were working either short or long hours in 1993 than in 1981. Between 1981 and 1993, the proportion of males working 35-40 hours per week fell from 77 % to 69 %. Meanwhile, male part-time employment grew from 2 % to 5 % and the percentage of men working at least 50 hours rose from 9 % to 13 %.

Since Canada's unemployment rate averaged 11.2 % in 1993 and 7.5 % in 1981, the increase in part-time employment observed between these two years comes as no surprise. However, the fact that more individuals were working long hours in 1993 than in 1981, **despite** these poor labour market conditions is quite puzzling. Why is this so ? The second goal of this paper is to examine potential answers to this question.

One may think that the growing proportion of individuals working long hours merely reflects changes in factors affecting one **particular** set of industries. For instance, technological changes in the manufacturing sector could necessitate longer hours from some workers of this industry. We show that

this explanation is not consistent with these data ; the percentage of workers putting in long hours is rising in most major industrial groups of the service sector as well as in manufacturing. At the very least, this suggests that the causes of the increase in long hours are not industry-specific. Alternatively, long hours could become more important simply because managers are putting in more hours than they used to. The data does not support this view either. While long hours have not gained ground in all occupations, they have become more important among men employed in sales, among women employed in natural and social sciences, among individuals working in processing-related occupations as well as among managers. Thus, while the shift towards long hours seems to occur in most industries, it does not take place in all occupations.

Morissette, Myles and Picot (1993) argue that greater pressures placed on firms to increase the flexibility of their workforce may have led them to make more intense use of part-time employment while requiring longer hours from their "core" workers. Increases in the fixed costs of employment (e.g. fringe benefits, training and hiring costs) combined with possibly stronger competitive pressures in the eighties may have induced firms to restrict hiring and require longer hours from some of their workers.

The paper is organized as follows. First, we present the data and concepts used in this study (section 1). Then we show that, over the last decade, the distribution of weekly hours has become more unequal for men and that for both sexes, standard workweeks have become less important (section 2). In section 3, we document in greater detail the decline of the relative importance of the standard workweek. Potential explanations for the growing dispersion of weekly hours are presented in section 4. A summary of the findings and concluding remarks follow.

1. Data and Concepts

The data are taken from the September files of the Labour Force Survey and cover the period 1976-1993. The Labour Force Survey asks workers how many hours they **usually** work per week and how many hours they **actually** worked during the reference week. Generally, usual hours plus extra hours less time lost (due to holidays, illness, labour dispute, etc.) equal the actual hours worked during the reference week. Since we are primarily interested in the number of hours "normally" worked by individuals, the concept used in this study will be **usual** hours.

Usual hours may include hours of overtime. For instance, if an employee habitually works five hours of overtime per week, this would be included **implicitly** in his/her usual hours. In LFS, the only question referring explicitly to overtime measures hours of overtime **in excess** of hours of overtime usually worked (i.e. in our example, hours of overtime in excess of five hours). While hours of overtime usually worked are implicitly included in usual hours, the LFS questionnaire does not measure them separately. As a result, LFS allows analysts to measure only a fraction of all hours of overtime worked during the reference week.

For both usual and actual hours, data are collected on the two following fields : 1) the number of hours worked in the **main** job and 2) the number of hours worked in **other** jobs. The main job is the one associated with the greatest number of usual hours worked while the category "other jobs" encompasses all other jobs.

Aggregating hours worked in all jobs allows us to study weekly hours worked by **individuals** (in one or many jobs) and thus to evaluate the extent to which weekly hours are concentrated among few workers. This is the issue of inequality in (or dispersion of) weekly hours across **individuals**. We tackle this issue in section 2.1. Thus, the concept used in that section is the **number of hours usually worked per week by individuals**.

Inequality in weekly hours across individuals may increase if the dispersion of hours worked in the main job and/or the dispersion of hours worked in other jobs are growing. We show that for both men and women, most of the changes in inequality in weekly hours across individuals are due to changes in dispersion of weekly hours in the main job. This is why we restrict our attention - in the rest of the paper - to changes in the distribution of weekly hours usually worked in the **main job**. Thus, the concept used in section 2.2 and subsequent sections is the **number of hours usually worked per week in the main job**.

All hours data recorded on the LFS questionnaire are rounded to the nearest unit. For example, a respondent working a 37.5 hour workweek will be recorded as working 38 hours. Hours are topcoded at 99, i.e a response of 100 or more hours per week is entered as 99 by the interviewer. This would likely

bias estimates of inequality measures if one were to use the whole set of observations¹. To avoid this, we restrict the sample to individuals who worked 98 hours or less in their main job as well as in other jobs. Since our main concern is with changes in the distribution of weekly hours for individuals who are already "in" the labour market, i.e. who previously made a transition from school to work, we further restrict the sample to individuals who were not full-time students during the reference week of September. Finally, our primary interest in this paper lies in changes in hours worked by paid workers. For all these reasons, the sample used in **all** sections of this study consists of : 1) individuals aged 15 to 64, 2) who are paid workers in their main job, 3) who were not full-time students during the reference week of September and 4) who worked 98 hours or less per week a) in their main job as well as b) in other jobs. Since the focus of section 2.2 and subsequent sections is on weekly hours worked in the main job and since the sample used consists of individuals who are paid workers in their main job, the analysis conducted in section 2.2 and subsequent sections excludes self-employment².

As is usual in LFS, part-time jobs are defined as those involving 29 hours or less per week and full-time jobs as those requiring at least 30 hours per week. Since they constitute the majority of paid workers, individuals working 35 to 40 hours per week in the main job will often be referred to as those working "standard" hours.

In this study, the term "inequality in weekly hours" refers to the extent to which weekly hours are concentrated among a few individuals. Generally speaking, an increase in inequality in weekly hours occurs when individuals working long hours account for a growing share of total weekly hours while those who work short hours account for a declining share of total weekly hours³. In what follows, we use the terms inequality and dispersion interchangeably.

¹ While the use of the whole sample would bias the inequality measures, the magnitude of the bias is likely to be constant if the fraction of workers actually working more than 98 hours is stable over time. The fact that some of the LFS interviews are conducted using proxy responses is another potential source of bias. Once again, as long as the relative importance of proxy responses does not change dramatically over time, the magnitude of this bias is likely to be constant.

² In section 2.1, we examine weekly hours worked by individuals in **other** jobs as well as in their **main** job. Since we restrict the sample to individuals who are paid workers in their **main** job but do not impose any restriction on the class of worker in **other** jobs, individuals may be - in section 2.1 only - paid workers or self-employed in their **other** jobs.

³ In technical terms, inequality in weekly hours is unambiguously higher at time t than at time $t-1$ if the Lorenz curve of weekly hours at time t lies everywhere below the Lorenz curve of weekly hours at time $t-1$.

2. Inequality in Weekly Hours : From the Mid-Seventies to the Nineties

2.1 Inequality in Weekly Hours Across Individuals

Morissette, Myles and Picot (1993) show that, over the last decade, inequality in annual earnings rose in Canada among all male earners and among workers - men and women - employed full-time full year. Most important, they find that the growth in inequality in **annual** hours worked underlie most of the rise in earnings inequality observed during the eighties. Their work further suggests that growing inequality in **weekly** hours across individuals is an important factor behind the rise of earnings inequality. How has inequality in weekly hours evolved during the eighties in Canada ?

The answer is straightforward : over the last decade, the distribution of weekly hours has become more unequal for men but not for women (Figure 1)⁴. The 1981-82 recession triggered increases in inequality for both sexes. However, while inequality remained at higher levels for men through the subsequent recovery, it trended downwards for women between 1983 and 1989. Between these two years, the distribution of weekly hours became more equal for women because - as we will show below - women employed in part-time jobs increased their hours more rapidly than those working in full-time jobs.

Inequality in weekly hours across **individuals** may vary as a result of changes in the two following components : 1) inequality in weekly hours worked in the **main job** and 2) inequality in weekly hours worked in **other jobs**. For both men and women, the first component has by far the strongest influence. Among men, 95 % of the rise in the variance of weekly hours observed between 1976 and 1993 results from increases in the variance of weekly hours worked in the main job (Figure 2 and Table 1). Among women, the related figure is 82 %⁵. Given the predominant role of that component, the focus of the rest of the paper will be on changes in the distribution of weekly hours usually worked in the **main job**.

⁴ Trends in inequality in weekly hours and trends in mean weekly hours are presented from 1976 through 1993 in Figure 1. Three different measures of inequality are used. Each of the measures is sensitive to different shifts in the shape of the hours distribution. The Gini coefficient (GINI) is sensitive to changes in the middle of the distribution, the coefficient of variation (CV) to movements at the top, and the Theil-Entropy index (TE) to movements at the lower end of the distribution.

⁵ Since mean weekly hours worked by individuals and mean weekly hours worked in the main jobs show very little change for the years considered, changes in the variances do not overestimate changes in dispersion.

2.2 Inequality in Weekly Hours Worked in the Main Job

Figure 3 shows trends in inequality in weekly hours worked in the main job. The trends are presented for four populations : 1) all men, 2) all women, 3) men employed in full-time jobs and 4) women employed in full-time jobs. Trends in mean weekly hours are also presented. In all cases, changes in the distribution of weekly hours, as captured by the inequality measures, are much more pronounced than changes in mean weekly hours.

Among **all men**, inequality was relatively stable during the second half of the seventies. It rose sharply with the onset of the 1981-82 recession and then remained virtually unchanged until the beginning of the 1990-92 recession, where it started rising again (Figure 3). Most important, it was higher in 1989 than in 1981, two years for which the unemployment rate stood at 7.5%. This suggests that its growth was driven both by cyclical and non-cyclical factors. Among **all women**, the inequality curve displayed an inverted V-shape. As for men, the dispersion of weekly hours increased substantially with the beginning of the 1981-82 recession, peaking in 1983. However, contrary to men, it declined between 1983 and 1989 before rising again with the onset of the 1990-92 recession (Figure 3).

For both **men and women employed in full-time jobs**, inequality shows an upward trend since 1981. This has two important implications. First, it indicates that the growth in inequality observed among **all men** cannot be explained solely by the rise of male part-time employment. Second, since the decline in inequality observed among **all women** (part-time and full-time) between 1983 and 1989 occurred despite a rise in inequality among those employed in full-time jobs, this suggests that changes in female part-time employment tended to reduce inequality during that period. In fact, mean weekly hours worked in part-time jobs increased more rapidly than those worked in full-time jobs⁶ ; this tended to reduce inequality in weekly hours.

For both **all men and all women**, the changes in inequality documented above took place at a time when the percentage of individuals working standard workweeks (i.e. 35 to 40 hours per week) was falling markedly (Figure 4). Between 1981 and 1993, the proportion of men working standard workweeks fell

⁶ Between 1983 and 1989, mean weekly hours worked by women in part-time jobs rose by 4.6 % while mean weekly hours worked by women in full-time jobs increased by only 0.4 %.

from 77 % to 69 % ; the proportion of women doing so dropped from 68 % to 61 % (Table 2)⁷. While part of that decline is associated with an increase in part-time employment, a fraction of it is related to an increase in the proportion of individuals working "long hours" (Figure 4). During that period, the proportion of individuals working 50 hours or more per week rose from 9 % to 13 % for men and from 2 % to 4 % for women.

The timing of the decline of the standard workweek differs between men and women. The fraction of men working standard workweeks remained virtually unchanged between 1976 and 1981. It started falling with the onset of the 1981-82 recession, was fairly constant during the second half of the eighties - despite the subsequent recovery - and then dropped further during the 1990-92 recession (Figure 4). As a result, most of the decline took place during the last two recessions. In contrast, the fraction of women working standard workweeks fell steadily between 1976 and 1981. Then, as for men, most of the decline observed between 1981 and 1993 coincided with the last two recessions. For both sexes, the proportion of individuals working standard workweeks has never returned to its 1981 value since the 1981-82 recession.

Inequality in weekly hours may rise because : 1) a greater proportion of people are working "short" or "long" hours, 2) mean weekly hours of individuals working short hours are falling relative to those of individuals working long hours and 3) the dispersion of weekly hours is increasing both within jobs involving short hours and jobs requiring long hours. Thus, inequality in weekly hours depends not only on the proportions of individuals working a given number of hours, but also on mean weekly hours worked in a given interval (e.g. mean hours worked by those employed 30 to 34 hours per week) and on the dispersion of weekly hours within each of these intervals. The first factor refers to changes in the **composition** of employment defined in terms of hour intervals. The second scenario refers to a rise in **between-group** inequality (between workers in short and long hour jobs) while the third illustrates an increase in **within-group** inequality (i.e. within jobs with short hours or within jobs with long hours). Using appropriate inequality measures, one can determine how much of a given rise in inequality is

⁷ Note that while the percentage of individuals working 35 to 40 hours per week remained relatively stable for men between 1976 and 1981, it declined from 71 % to 68 % for women during the same period (Table 2). The decline is mainly accounted for by an increase in women's part-time employment, which rose from 17 % to 20 %. As we will argue below, this difference suggests that - particularly for women - changes in the distribution of weekly hours result both from changes in the number of hours worked in a given set of jobs and from changes in labour supply, i.e. changes in the proportion of individuals employed in these jobs.

accounted for by each of these three factors. When this is done, two conclusions emerge⁸. First, the rise in inequality observed among **all men** either between 1981 and 1989 or between 1981 and 1993 is totally due to changes in the proportions of males working 1-29, 30-34, 35-40, 41-49 or 50 hours or more (i.e. the first factor, see Table 3). Between-group dispersion and within-group dispersion tended to reduce slightly inequality in weekly hours. Second, as for men, changes in the proportions of women working a given number of hours (as defined by the intervals 1-29, ... 50+) tended to **increase** inequality both between 1981 and 1989 and between 1981 and 1993. However, this effect was offset by a decrease in between-group dispersion. The result was that inequality did **not** increase among **all women** (part-time and full-time) between 1981 and 1989 and increased - less than it would have in the absence of any offsetting influence - between 1981 and 1993.

Together, these results show rising inequality in weekly hours among all Canadian men and among workers employed in full-time jobs. For both men and women, the changes in inequality which took place between 1981 and 1993 were associated with a decline in the proportion of individuals working standard workweeks and with an increase in the proportion of those working either part-time or long hours. Since there was much more slack in the labour market in 1993 than in 1981, one should have expected a decrease in the tendency to work long hours. Quite surprisingly, more employees were working 50 hours or more in 1993 than in 1981. Why is this so ?

3. The Decline of the Standard Workweek : A Closer Look

Are short hours and long hours becoming increasingly important regardless of macroeconomic conditions ? To assess whether this is the case, we run the following regression over the 1976-1993 period:

$$P_t = B_0 + B_1 * MACRO_t + B_2 * TREND_t + u_t \quad (1)$$

where P_t , the dependent variable, is the percentage of individuals working a given number of hours (e.g. 1-29), $MACRO_t$ is a proxy for the business cycle, $TREND_t$ is a time trend and u_t is a random term. We estimate equation 1 using four different dependent variables : 1) the percentage of individuals working

⁸ For a discussion of the methodology underlying these decompositions, see Morissette, Myles and Picot (1993).

1-29 hours, 2) 1-34 hours, 3) 41 or more hours and 4) 50 or more hours. For each dependent variable, we run four versions of equation 1. The first two versions (Models 1 and 2) use the unemployment rate as a proxy for the business cycle while the last two (Models 3 and 4) use the deviation of real GDP from its trend as an indicator of macroeconomic conditions⁹. Moreover, we assume that short and long hours started trending upwards either at the beginning of the period (i.e. in 1976 : Models 2 and 4) or with the onset of the 1981-82 recession (i.e. in 1982 : Models 1 and 3)¹⁰. The values of the time trend coefficients (i.e. B_2) are presented in Table 4 (see Appendix 1 for detailed regression results).

Whatever model is used, the proportions of men and women working 1-29 hours, 1-34 hours, 41 hours or more or 50 hours or more all show a positive and statistically significant trend even after accounting for movements in the business cycle¹¹. For instance, the results from Model 1 indicate that the fraction of men working 41 hours or more tends to increase by 0.38 percentage point per year while the fraction of men working 1-34 hours tends to rise 0.15 percentage point per year. This is far from negligible. It implies that the proportion of men working standard workweeks (i.e 35-40 hours per week) tends to drop by 0.53 percentage point (i.e. $0.38 + 0.15$) each year or by 5.3 percentage points every ten years. In fact, doing these simple calculations for all models suggests that, other things equal, the proportion of men working standard workweeks would tend to decrease by 4 to 6 percentage points over a ten-year period. The proportion of women working standard workweeks would tend to drop by 4 to 5 percentage point during the same period. While these findings are based on a fairly small number of observations (i.e. 18 years), they do suggest that the trend towards short hours and long hours is both statistically and empirically significant.

3.1 Disaggregation by Age

The proportion of men working 35 to 40 hours per week was relatively stable between 1976 and

⁹ Sex-specific average unemployment rates of the current year are used. The deviation of real GDP from its trend is calculated over the period 1961 to 1993.

¹⁰ In the former case, $TREND_t$ equals 1 in 1976, 2 in 1977, ... and 18 in 1993. In the latter case, $TREND_t$ equals 0 before 1982, 1 in 1982, 2 in 1983, ... and 12 in 1993.

¹¹ For both men and women, better macroeconomic conditions tend to decrease the propensity to work 1-29 hours or 1-34 hours and to increase the propensity to work 41 hours or more or 50 hours or more. However, the relationship is not always statistically significant at the 5 % level.

1981 in all age groups. It started falling after 1981. Between 1981 and 1989, the proportion of individuals working standard workweeks fell by at least 5 percentage points for all men except those aged 35 to 44 (Table 5). For young men (i.e. those aged 15 to 24), the decline of the standard workweek observed between these two years was associated with an increase in both shorter and longer hours. For workers aged 25 or more, at least 70 % of the decline occurred as a result of a shift towards longer hours¹². The decline of the standard workweek continued after 1989 with the onset of the 1990-92 recession. During this recessionary period, it was mainly associated with an increase in part-time employment¹³. Yet despite the substantial increase in unemployment that accompanied that recession, the percentage of individuals working at least 41 hours did not decrease between 1989 and 1993 for men aged 35 to 54. The net result is that between 1981 and 1993, the proportion of individuals working 50 hours or more increased by 3 to 5 percentage points for men aged 25 or more.

For women, the relative importance of the standard workweek started declining in 1976 (Figure 4). Most of the decline was related to an increase in part-time employment. Between 1981 and 1989, the fraction of women working 35 to 40 hours fell by 7 points and 9 points for those aged 15 to 24 and those aged 55 to 64, respectively (Table 6). The drop was mainly accounted for by an increase in shorter hours. Yet, for women aged 25 to 54, standard hours did **not** - contrary to men - lose ground during that period. Part of the difference is probably related to women's movement towards occupations requiring longer hours (e.g. management, natural and social sciences)¹⁴. While the share of part-time employment varied very little for men aged 25 to 54, there was a movement of women out of part-time jobs into full-time jobs during the eighties. Between 1981 and 1989, the fraction of women aged 25 to 54 employed part-time fell by 2 to 4 points. This explains why, even after the 1990-92 recession, part-time employment was, for these women, lower in 1993 than in 1981. Since the relative importance of standard hours fell slightly for this group between 1989 and 1993, the main consequence is that the decline of the standard

¹² Between 1981 and 1989, the percentage of men aged 55 to 64 working standard workweeks fell by 6.1 points while the proportion of those working at least 41 hours rose by 4.2 points. Thus, roughly 70 % (i.e. $4.2/6.1$) of the decline in the standard workweek was accounted for by a shift towards longer hours. Similar calculations lead to higher percentages for men aged 25-34, 35-44 or 45-54.

¹³ The absolute increase in part-time employment was the highest among young men. For this group, part-time employment rose from 6.1 % to 13.7 %. While older workers experienced a smaller **absolute** increase in part-time employment, their **relative** increase was almost as high as that of young workers ; in almost all age groups, the share of part-time employment doubled between 1989 and 1993.

¹⁴ Another possibility would be that in some occupations, the fraction of jobs requiring standard hours has not decreased for women. If this were the case, one would have to explain why this fraction has decreased for men.

workweek is, between 1981 and 1993, much less pronounced for women aged 25 to 54 than for their male counterparts. As for young men, the last recession induced a huge increase (+10 points) in part-time employment among young women.

Two conclusions can be drawn from the previous observations. First, for both men and women, the increased dispersion of weekly hours observed during the eighties does not result from similar changes in the age-specific distributions of weekly hours. For men, the decline of the standard workweek observed between 1981 and 1989 occurred in all age groups and resulted from the combination of a shift towards both shorter and longer hours for young workers and of a shift mainly towards longer hours for older workers. For women, the decline occurred only among those aged 15 to 24 and 55 to 64. Women aged 25 to 54 tended to shift from part-time to full-time jobs. Second, changes in women's distribution of weekly hours appear - to a greater extent than may be the case for men's distribution - to result both from changes in the number of hours worked in a given set of jobs and from changes in labour supply.

3.2 Disaggregation by Education

Table 7 presents changes in the distribution of weekly hours by education level for men. Since the LFS coding of education levels changed in 1990 - introducing a break in the series - trends are shown for the period 1976 to 1989. Between 1981 and 1989, the proportion of men working standard hours fell in all education levels. The shift towards long hours is more pronounced for university graduates than for men with lower education. This pattern remains when we control broadly for differences in age. For instance, between 1981 and 1989, the fraction of men working more than 40 hours increased by 9 percentage points for university graduates aged 35 to 54 whereas the increase observed for those with 9-13 years of schooling was only 2 percentage points (Table 8). It is worth noting that the timing of the decline in standard hours differs between various age/education groups. For men aged 15 to 34, most of the drop in standard hours took place between 1981 and 1985. In contrast, the bulk of the decline occurred between 1985 and 1989 for male university graduates aged 35 to 54.

The greater shift towards long hours among highly educated men is also observed among highly educated women. Between 1981 and 1989, the fraction of female university graduates working more than 40 hours increased by 5 points whereas it rose by at most 2 points for women with lower education (Table 9). Once again, this pattern holds within broad age groups (Table 10).

3.3 Disaggregation by Industry

The growing proportion of individuals working long hours could simply reflect changes in factors affecting one particular set of industries. For instance, technological changes in the manufacturing sector could necessitate longer hours from some workers of this industry. The data does not support that contention. In most major industrial groups¹⁵ of the service sector as well as in manufacturing, relatively more workers were putting in long hours in 1993 than in 1981. Between these two years, the percentage of men working 50 hours or more increased by 6 points and 5 points in distributive and business services, respectively, by 3 points in manufacturing and by 4 points in construction (Table 11). An even more dramatic increase (+10 points) was observed in forestry and mining. As for men, the greater tendency of women to work longer hours is not limited to manufacturing either. Between 1981 and 1993, rising proportions of women working 41 hours or more are also found in most major industrial groups of the service sector (Table 12).

The fact that the movements towards long hours are not limited to a particular set of industries is far from trivial. It indicates that the factors underlying these movements, whatever they are, affect most firms in the economy. Hence, any potential explanation must account for the widespread nature of these changes.

3.4 Disaggregation by Occupation

The percentage of men working standard workweeks has fallen in all major occupational groups since the mid-eighties. Yet the changes in the distribution of weekly hours have not been the same in all groups¹⁶. Between 1985 and 1993, the strongest movements from standard to long hours are found in

¹⁵ The major industrial groups of the service sector are defined as follows :

- | | |
|--------------------------------|--|
| Distributive Services : | 1) Transportation, 2) Storage, 3) Communication, 4) Electric Power, Gas and Water Utilities and 5) Wholesale Trade. |
| Business Services : | 1) Finance, 2) Insurance Carriers, 3) Insurance Agencies and Real Estate and 4) Services to Business Management. |
| Consumer Services : | 1) Retail Trade, 2) Amusement and Recreation, 3) Personal Services, 4) Accommodation and Food Services and 5) Miscellaneous Services. |
| Public Services : | 1) Education and Related Services, 2) Health and Welfare Services, 3) Federal Administration, 4) Provincial Administration, 5) Local Administration and 6) Other Government Offices. |

¹⁶ In this paper, the processing-related occupations include the following occupations : 1) processing, 2) machining, 3) fabricating. The category "other" includes the following occupations : 1) artistic, 2) farming, 3) fishing, 4) forestry, 5) mining, 6) construction, 7) transportation, 8) material handling and 9) other crafts.

managerial and sales-related occupations ; the fraction of men working 50 hours or more in these occupations rose by 6 points and 3 points, respectively during that period¹⁷ (Table 13). Processing-related occupations and other occupations exhibit more modest increases (2 points). In contrast, occupations related to clerical work, to services and to teaching/medicine display clear shifts from standard hours to part-time employment ; the proportion of men employed part-time in these occupations increased by 5 points, 4 points and 3 points, respectively over the same period. In all three cases, the increase in part-time employment occurred with the onset of the 1990-92 recession.

Among women, the standard workweek has become less important in all occupations except those related to sales and services. The proportion of women employed part-time in sales fell by 10 points between 1985 and 1989 and then increased by 7 points between 1989 and 1993 (Table 14). As a result, 3 % of employment in sales was shifted from part-time jobs to standard hours between 1985 and 1993. Of all occupations in which standard hours lost ground during that period, those related to management, natural/social sciences and processing show the highest increases in the propensity to work more than 40 hours ; these increases amount to 2, 4 and 4 percentage points respectively. As was the case for men, clerical occupations exhibit an opposite trend, with most of the decline in standard hours being due to an increase in the relative importance of shorter hours.

Combined with the previous findings based on the disaggregation by age and education level, these results point to an increase in relative hours worked by highly skilled workers, i.e. either highly educated workers, those employed in occupations related to management and natural/social sciences or those with more experience on the labour market (as proxied by age). While the increasing tendency to work long hours is not observed in all occupations, it is certainly not limited to managers. Men employed in sales, women employed in natural and social sciences and individuals employed in processing-related occupations tended to work long hours more often in 1993 than in 1985.

4. Discussion

The obvious question is : why are weekly hours becoming more dispersed ? Any explanation must take into account the five following facts. First, the shift towards long hours is, among men, more

¹⁷ The LFS coding of occupations changed in 1984. As a result, trends in the distribution of weekly hours are valid only for the following two periods : 1976-1983 and 1984-1993. This is why we restrict our attention to the years 1985, 1989 and 1993.

pronounced for older workers. Second, the shift towards long hours is greater among highly educated workers than among their low-educated counterparts. Third, the shift towards long hours is observed in most industries. Fourth, the decline of the standard workweek is associated with a shift towards long hours in certain occupations (e.g. management) and with a movement toward short hours in other occupations (e.g. clerical work). Fifth, most of the decline of the standard workweek which took place between 1981 and 1993 coincided with the last two recessions (Figure 4).

Morissette, Myles and Picot (1993) argue that greater pressures placed on firms to increase the flexibility of their workforce may have led them to make more intense use of part-time employment while requiring longer hours from their "core" workers. A related argument is that the 1981-82 recession induced firms to improve productivity and cut labour costs and that many of them responded by making greater use of compensation schemes based on performance [Booth (1987)]. The increasing importance of pay-for-performance compensation strategies suggests that for a growing proportion of workers, annual earnings are linked to performance and thus possibly to the number of hours worked. This may explain partly the growing tendency to work long hours.

Another view is that increases in supplementary labour income have made firms reluctant to hire new workers [Business Week (1993)]. Employer expenditures for programs like the C/QPP and Unemployment Insurance as well as employer contributions for fringe benefits typically stop when employee earnings rise above a specified level. As a result, it is advantageous for employers to utilize higher paid employees for longer hours instead of hiring additional workers to increase output. The shift to a high skill labour force compounds the problem. When the skills required are firm specific and training costs are absorbed by the employer, it is to the firm's advantage to employ trained workers for longer hours rather than to add new employees who require additional training costs. Conversely, whenever the skill requirements and training costs are low, high expenditures on supplementary labour income for permanent employees may lead firms to make greater use of part-time workers, for which fringe benefits are usually low or nonexistent. This could explain the shift towards short hours for clerical workers.

Since the mid-sixties, supplementary labour income¹⁸ has increased as a proportion of total labour income (Figure 5). Since the increase is observed in all industries (Table 15), this explanation appears

¹⁸ Supplementary labour income is employer contribution to employee welfare pension, workers' compensation and unemployment insurance plans.

consistent with the fact that the increasing propensity to work long hours is not industry-specific. However, given that supplementary labour income increased during the **second half of the seventies** as well as during the eighties, one may wonder why - at least for men - the dispersion of weekly hours has not increased during the second half of the seventies. One possible answer is that the constraints associated with the growth of supplementary labour income did not operate until after the 1981-82 recession, when increasing competitive pressures led firms to restructure, trim staff and cut labour costs.

The previous explanations focus on changes in employers' behaviour in response to rising competitive pressures or increasing fixed costs of employment. Other explanations rely on changes in labour supply. Thus, one may argue that the stagnation of real wages since the mid-seventies have induced workers to put in more hours to increase their real annual earnings. While this argument may explain part of the changes observed, it does not explain why the proportion of men working long hours started trending upwards **right after** the 1981-82 recession (Figure 4). Another possibility is that the reduction in the progressivity of the Canadian tax system for high-income families after 1984¹⁹ may have provided more incentives for some individuals to work longer hours. This is consistent with the fact the shift towards long hours is more pronounced among highly educated - and thus highly paid - workers than among their low-educated counterparts.

5. Concluding remarks

This paper examined changes in the distribution of weekly hours in Canada during the period 1976-1993. The main findings can be summarized as follows :

- 1) during the eighties, the distribution of weekly hours worked in one or many jobs has become more unequal for men but not for women. The changes in inequality were driven both by cyclical and non-cyclical factors ;
- 2) for both men and women, the distribution of weekly hours worked in full-time jobs has become more unequal during the eighties ;
- 3) for both men and women, the changes in inequality were associated with a decline of the relative importance of the standard workweek and a rise in the relative importance of both short and long hours;

¹⁹ Grady (1992: 22) shows that since 1984 "the tax changes have been very progressive in the aggregate for families with income less than \$35,000 per year, roughly proportional in the \$35,000 to \$75,000 range, moderately regressive in the \$75,000 to \$150,000 range, and very regressive over \$150,000 ..." .

- 4) between 1981 and 1993, the fraction of men and women working standard workweeks fell mainly during the last two recessions and did not increase during the recovery which took place during the second half of the eighties ;
- 5) for men, the decline of the standard workweek observed between 1981 and 1989 resulted from the combination of a shift towards both shorter and longer hours for young workers and of a shift mainly towards longer hours for older workers;
- 6) for women, the decline of the standard workweek occurred only among those aged 15 to 24 and 55 to 64 ; women aged 25 to 54 tended to shift from part-time to full-time jobs between 1981 and 1989;
- 7) the shift towards long hours was more pronounced among highly educated workers than among their low-educated counterparts;
- 8) the shift towards long hours is observed in most industries;
- 9) the shift towards long hours is not observed in all occupations but is not limited to managers.

The increasing use of pay-for-performance compensation schemes and the growing relative importance of supplementary labour income are consistent with the growing tendency of employees to work long hours. Whenever the skills required for a given job are low, the growing relative importance of supplementary labour income may also provide incentives for employers to have employees work part-time. The notion that firms are employing their "core" workers for longer hours needs to be defined more clearly. Coleman and Pencavel (1993) show that weekly hours of highly educated male workers have increased between 1940 and 1988. If "core" workers have long seniority and high education levels, then their mean weekly hours should rise relative to those of other workers. Using pooled time series and cross-sectional data, we could test formally this hypothesis. Finally, while we have documented the rise of part-time employment in conjunction with the increase in long hours, we have not looked at trends in involuntary part-time employment. Further work on the distribution of weekly hours should tackle these issues.

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FIGURE 1 : Standardized inequality indexes of weekly hours worked by individuals (1976 = 100).

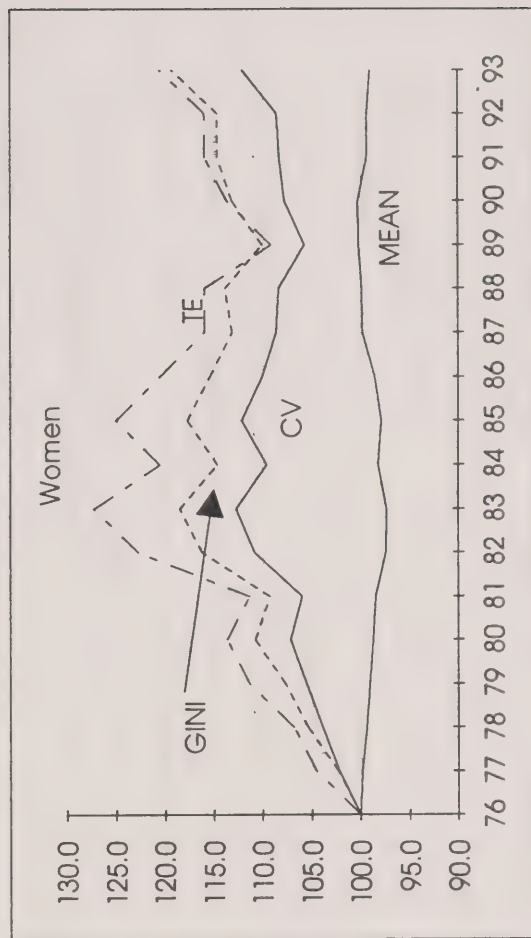
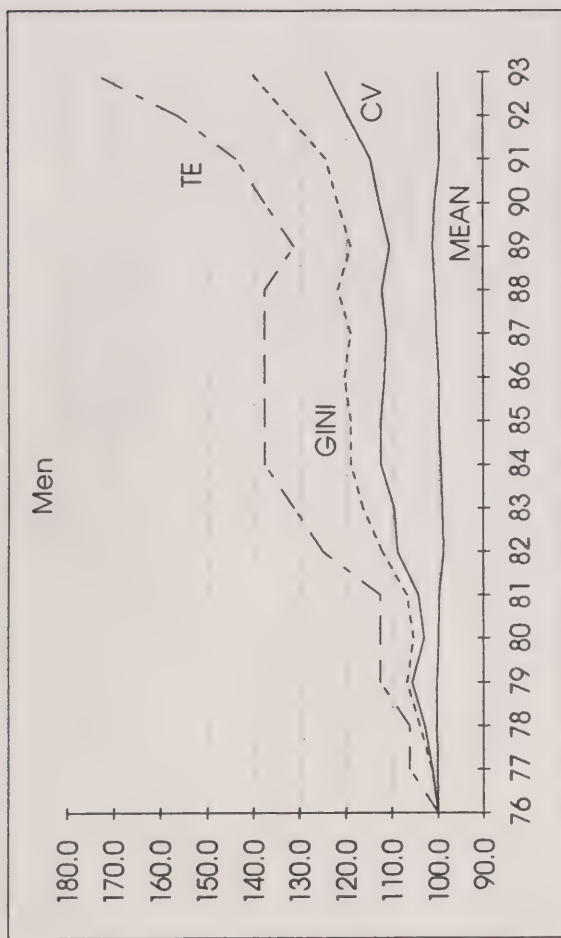


FIGURE 2 : Variance of weekly hours worked by Individuals (VAR1) and variance of weekly hours worked in the main job (VAR2), 1976-1993.

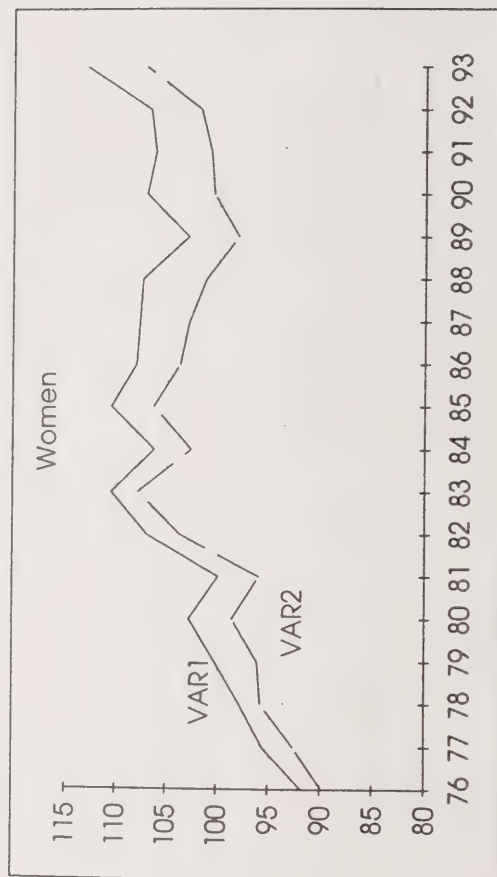
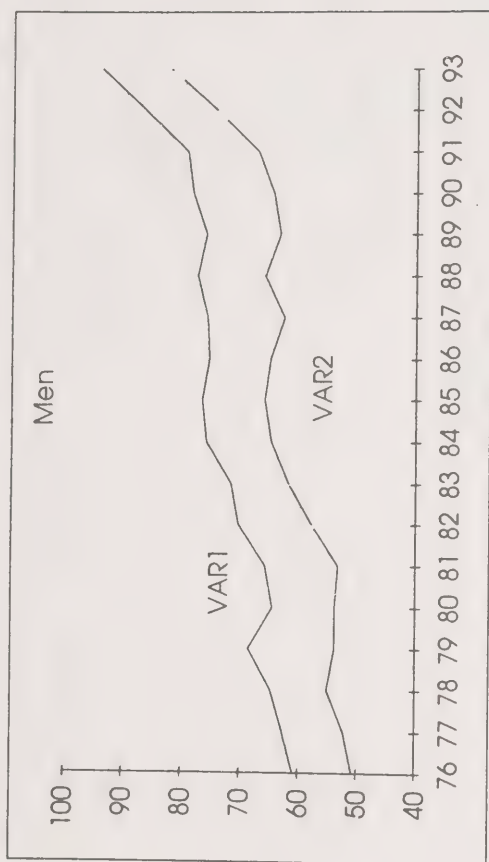


Figure 3 : Standardized inequality indexes of weekly hours worked in the main job, 1976-1993 (1976=100)

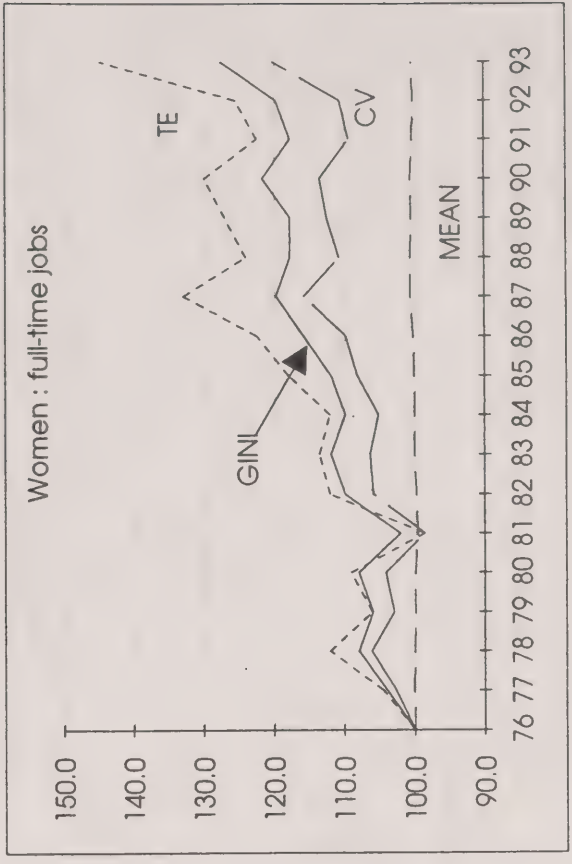
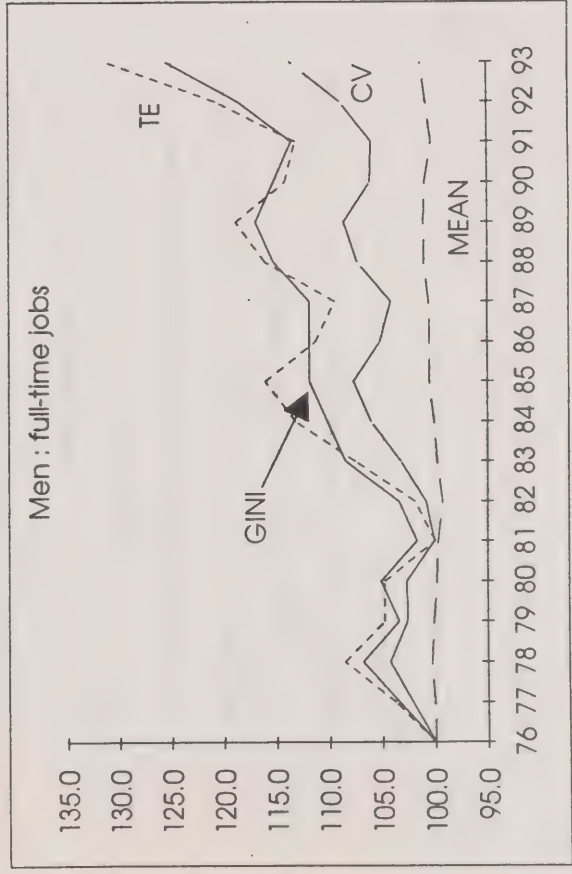
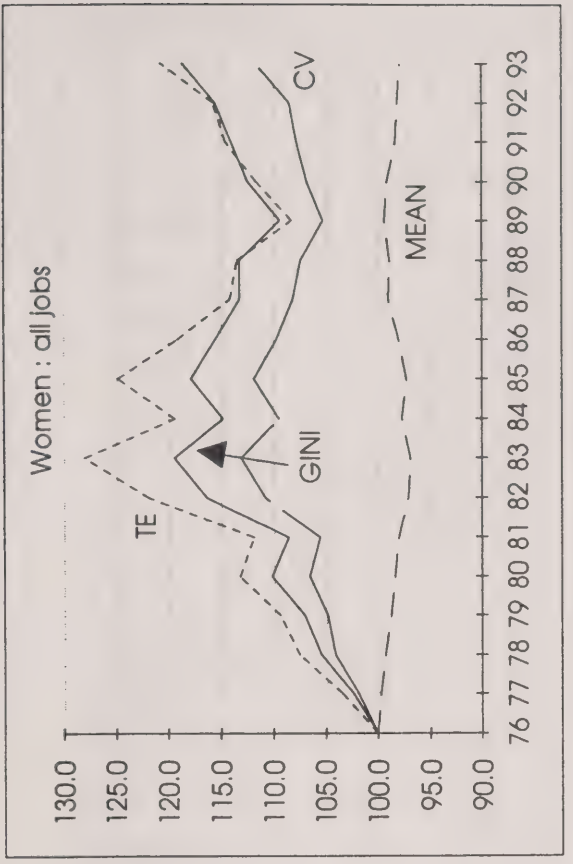
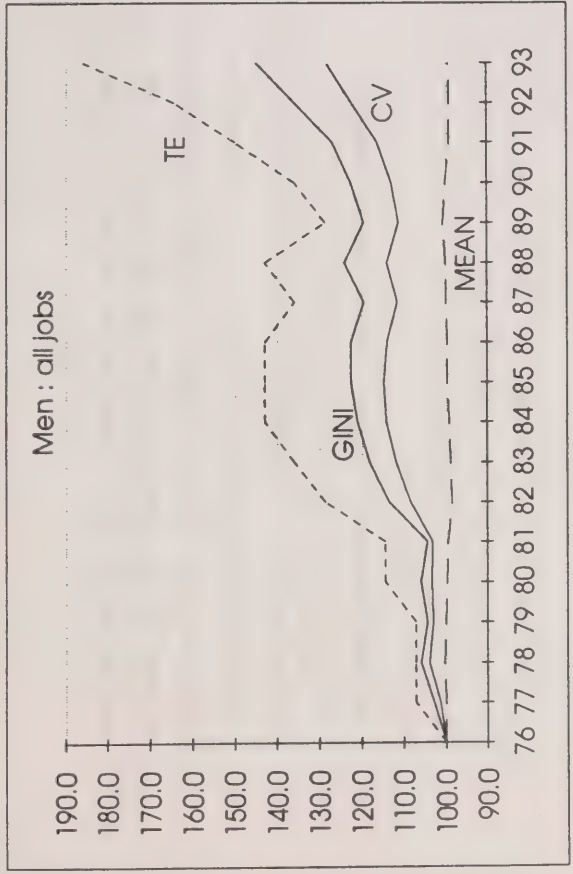


FIGURE 4 : Percentage of individuals working between x and y hours per week in the main job, (P(x-y)), 1976-1993.

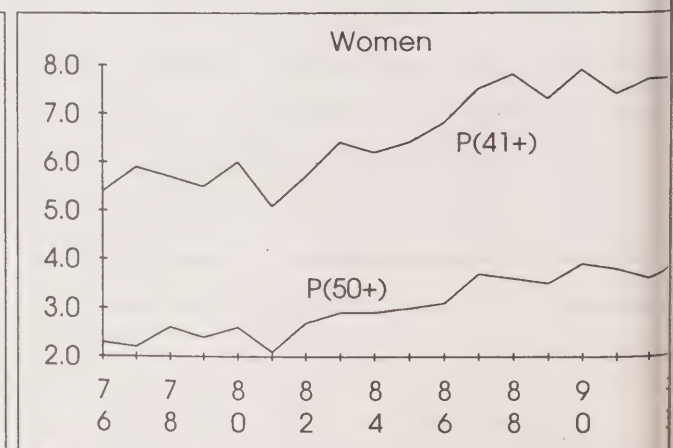
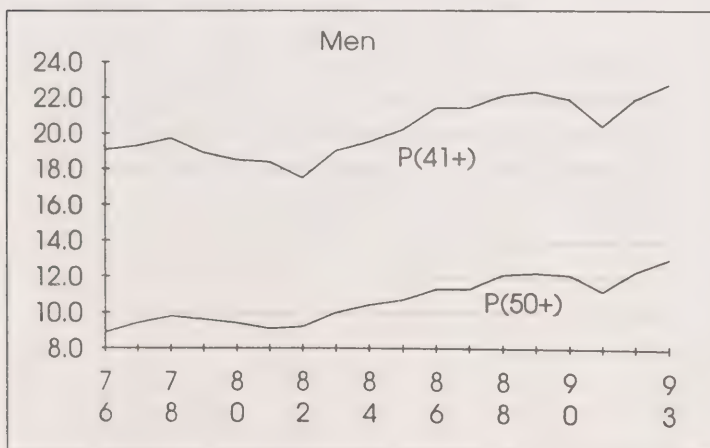
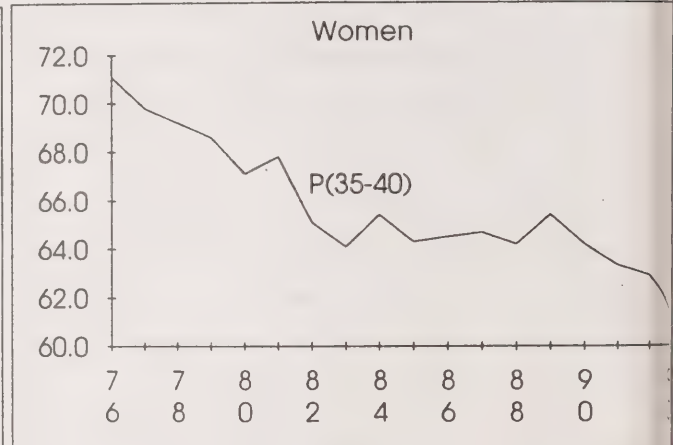
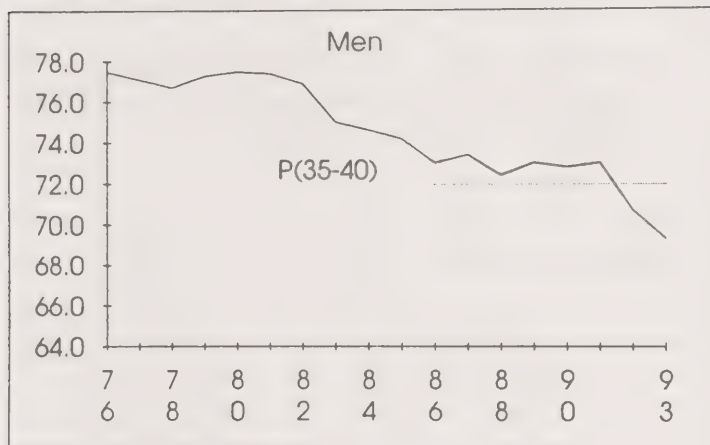
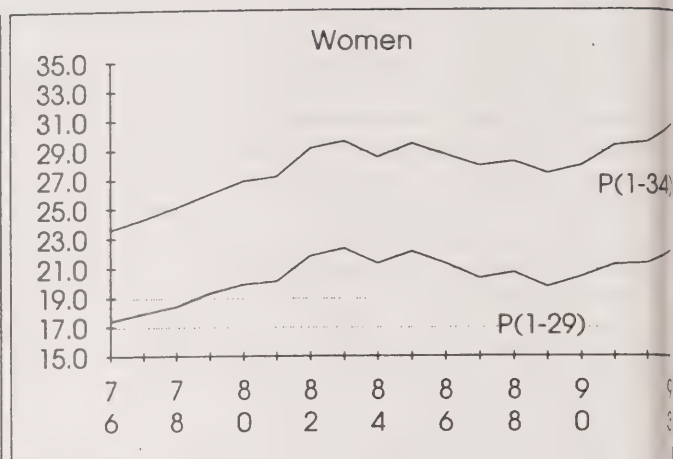
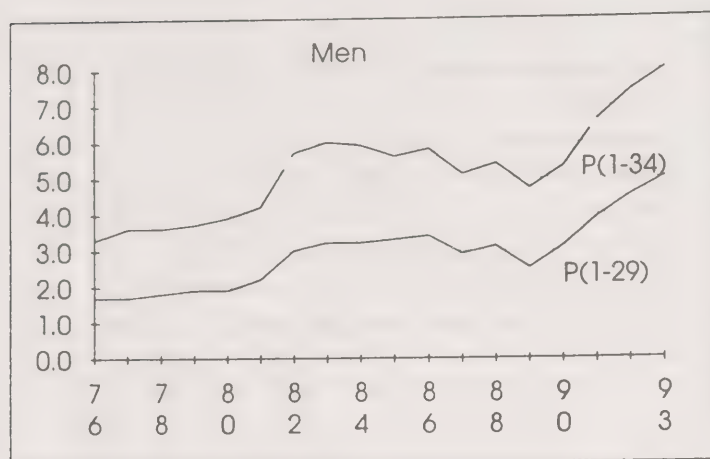


FIGURE 5

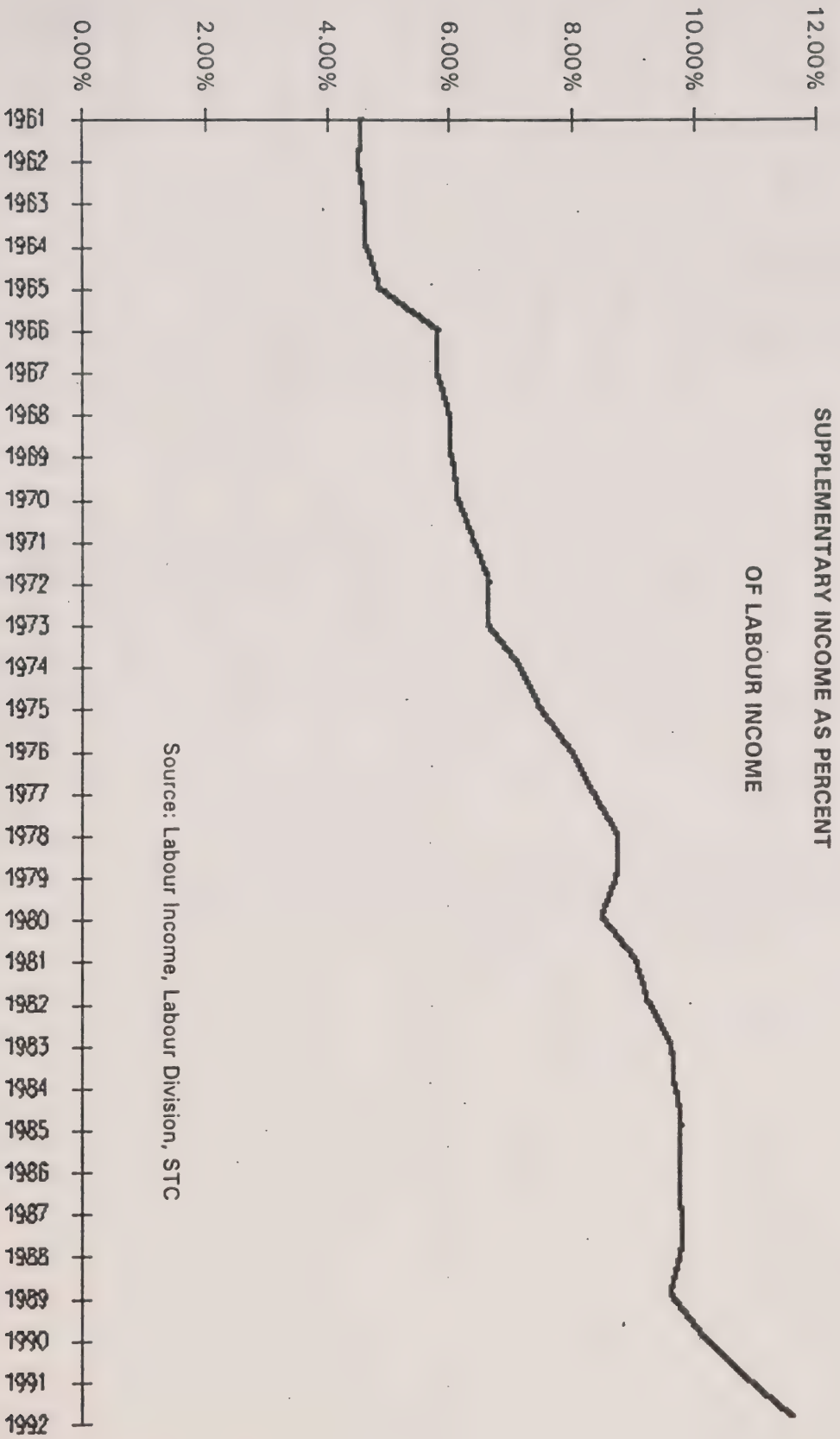


Table 1 : Decomposition of the variance of weekly hours worked by individuals.

Men				
Changes observed between 19__		76	81	81
and 19__		93	89	93
in :				
1) Variance of weekly hours worked by individuals		33.03	10.16	28.12
2) Variance of weekly hours worked in the main job		31.40	10.15	28.80
3) = 2) / 1)		95.1 %	100.0 %	102.4 %
Women				
Changes observed between 19__		76	81	81
and 19__		93	89	93
in :				
1) Variance of weekly hours worked by individuals		21.13	2.94	13.06
2) Variance of weekly hours worked in the main job		17.26	2.04	11.11
3) = 2) / 1)		81.6 %	69.4 %	85.1 %
Source : Unless otherwise specified, the Labour Force Survey is the source of all tables.				

Table 2 : Percentage distribution of men and women by weekly hours worked in the main job, 1976, 1981, 1985, 1989 and 1993.

	1976	1981	1985	1989	1993		1981 vs 1989	1989 vs 1993	1981 vs 1993	Net shift out of 35-40 hours	
										1981 vs 1989	1981 vs 1993
I. Men											
Number of hours											
1-29	1.7	2.2	3.3	2.5	5.0		0.3	2.5	2.8	0.5	3.8
30-34	1.6	2.0	2.3	2.2	3.0		0.2	0.8	1.0		
35-40	77.5	77.4	74.2	73.0	69.3		-4.4	-3.7	-8.1	-4.4	-8.1
41-49	10.2	9.3	9.5	10.1	9.7		0.8	-0.4	0.4		
50+	8.9	9.1	10.7	12.2	13.0		3.1	0.8	3.9	3.9	4.3
II. Women											
Number of hours											
1-29	17.4	20.1	22.1	19.7	22.2		-0.4	2.5	2.1	0.2	3.6
30-34	6.2	7.1	7.3	7.7	8.6		0.6	0.9	1.5		
35-40	71.1	67.8	64.3	65.4	61.4		-2.4	-4.0	-6.4	-2.4	-6.4
41-49	3.1	3.0	3.4	3.8	3.9		0.8	0.1	0.9		
50+	2.3	2.1	3.0	3.5	3.8		1.4	0.3	1.7	2.2	2.6

Table 3 : Decomposition of inequality in weekly hours worked in the main job.

Decomposition using : ____	(1) Theil-Entropy index	(2) Square of cv
Men : 1981-89		
a) Inequality in 1981 :	0.0157	0.0319
b) Inequality in 1989 :	0.0183	0.0371
c) Change in inequality = b) - a) :	0.0026	0.0052
1) due to change in mean weekly hours between hours intervals	-0.0004	-0.0007
2) due to change in inequality within hours intervals	-0.0001	-0.0004
3) due to change in the proportion of individuals in given hours intervals	0.0031	0.0063
Men : 1981-93		
a) Inequality in 1981 :	0.0157	0.0319
b) Inequality in 1993 :	0.0256	0.0492
c) Change in inequality = b) - a) :	0.0099	0.0173
1) due to change in mean weekly hours between hours intervals	-0.0002	-0.0003
2) due to change in inequality within hours intervals	0.0000	-0.0004
3) due to change in the proportion of individuals in given hours intervals	0.0101	0.0180
Women : 1981-89		
a) Inequality in 1981 :	0.0492	0.0819
b) Inequality in 1989 :	0.0476	0.0814
c) Change in inequality = b) - a) :	-0.0016	-0.0005
1) due to change in mean weekly hours between hours intervals	-0.0025	-0.0040
2) due to change in inequality within hours intervals	-0.0008	-0.0009
3) due to change in the proportion of individuals in given hours intervals	0.0017	0.0044
Women : 1981-93		
a) Inequality in 1981 :	0.0492	0.0819
b) Inequality in 1993 :	0.0531	0.0917
c) Change in inequality = b) - a) :	0.0039	0.0098
1) due to change in mean weekly hours between hours intervals	-0.0029	-0.0046
2) due to change in inequality within hours intervals	-0.0005	-0.0006
3) due to change in the proportion of individuals in given hours intervals	0.0073	0.0150

Table 4 : Annual increase (percentage points) in the proportion of individuals working short and long hours after controlling for business cycle effects, 1976-1993.¹

	(1)	(2)	(3)	(4)
Annual increase (percentage points) in the proportion of individuals working ____	1-29 hours	1-34 hours	41+ hours	50+ hours
Men				
Regressors used ²				
Model 1 : U, T82	0.13	0.15	0.38	0.31
Model 2 : U, T	0.11	0.13	0.30	0.25
Model 3 : D, T82	0.17	0.21	0.35	0.30
Model 4 : D, T	0.14	0.18	0.26	0.24
Women				
Regressors used ²				
Model 1 : U, T82	0.16	0.28	0.21	0.13
Model 2 : U, T	0.16	0.27	0.16	0.11
Model 3 : D, T82	0.14	0.26	0.21	0.14
Model 4 : D, T	0.15	0.25	0.17	0.11

1. The figures presented in this table show the annual increase in the proportion of individuals working short or long hours which are obtained after controlling for macroeconomic conditions. The numbers are percentage points. Thus, the results of Model 2 suggests that, after taking account of the business cycle, the proportion of men working 41 hours or more rises by 0.30 percentage point each year, or 3 percentage points every ten years.

2. A constant term is included in all regressions. The regressors are defined as follows : 1) U = sex-specific unemployment rate of the current year, 2) T82 = time trend starting in 1982 (i.e. T82 equals 0 before 1982, 1 in 1982, 2 in 1983, ... and 12 in 1993), 3) T = time trend starting in 1976, (i.e. T equals 1 in 1976, 2 in 1977 ... and 18 in 1993) 4) D = deviation of current real gross domestic product from its trend (calculated over the 1961-1993 period). The dependent variable is the proportion of individuals working 1-29 hours, 1-34 hours, 41 hours or more or 50 hours or more. All regressions are run over the 1976-1993 period. All the figures presented for men in this table and those presented for women in columns 3 and 4 are statistically significant at the 0.01 % level. The figures presented for women in columns 1 and 2 are statistically significant at the 5 % level. See Appendix 1 for detailed regression results.

Table 5 : Percentage distribution of men by weekly hours worked in the main job and by age, 1976, 1981, 1985, 1989 and 1993.

	1976	1981	1985	1989	1993	1981 vs 1989	1989 vs 1993	1981 vs 1993	Net shift out of 35-40 hours 1981 vs 1989 1981 vs 1993	
15-24										
1-29	3.3	5.1	7.8	6.1	13.7	1.0	7.6	8.6	2.3	13.2
30-34	2.0	2.5	4.2	3.8	7.1	1.3	3.3	4.6		
35-40	75.3	73.7	68.5	68.6	61.1	-5.1	-7.5	-12.6	-5.1	-12.6
41-49	11.6	10.2	10.2	10.3	8.7	0.1	-1.6	-1.5		
50+	7.9	8.6	9.4	11.3	9.5	2.7	-1.8	0.9	2.8	-0.6
25-34										
1-29	1.1	1.6	2.6	2.0	4.2	0.4	2.2	2.6	0.8	4.1
30-34	1.8	1.7	2.2	2.1	3.2	0.4	1.1	1.5		
35-40	77.2	77.5	74.7	72.7	69.0	-4.8	-3.7	-8.5	-4.8	-8.5
41-49	10.6	9.5	9.7	11.1	10.2	1.6	-0.9	0.7		
50+	9.3	9.7	10.9	12.2	13.4	2.5	1.2	3.7	4.1	4.4
35-44										
1-29	0.8	1.0	2.0	1.3	3.2	0.3	1.9	2.2	-0.4	1.7
30-34	1.6	2.2	1.8	1.5	1.7	-0.7	0.2	-0.5		
35-40	77.4	77.1	75.2	75.5	72.2	-1.6	-3.3	-4.9	-1.6	-4.9
41-49	9.7	9.6	9.5	9.3	9.7	-0.3	0.4	0.1		
50+	10.5	10.1	11.5	12.5	13.3	2.4	0.8	3.2	2.1	3.3
45-54										
1-29	1.0	1.2	2.0	1.7	3.1	0.5	1.4	1.9	0.7	2.2
30-34	0.8	1.6	1.6	1.8	1.9	0.2	0.1	0.3		
35-40	79.3	79.9	76.3	72.6	70.2	-7.3	-2.4	-9.7	-7.3	-9.7
41-49	9.5	7.9	8.9	9.6	10.5	1.7	0.9	2.6		
50+	9.4	9.3	11.2	14.2	14.3	4.9	0.1	5.0	6.6	7.6
55-64										
1-29	3.4	2.5	3.8	3.5	6.9	1.0	3.4	4.4	2.0	6.0
30-34	1.8	2.1	1.6	3.1	3.7	1.0	0.6	1.6		
35-40	79.7	80.5	76.2	74.4	70.0	-6.1	-4.4	-10.5	-6.1	-10.5
41-49	8.8	8.6	8.8	9.8	7.7	1.2	-2.1	-0.9		
50+	6.4	6.3	9.6	9.3	11.7	3.0	2.4	5.4	4.2	4.5

Table 6 : Percentage distribution of women by weekly hours worked in the main job and by age, 1976, 1981, 1985, 1989 and 1993.

	1976	1981	1985	1989	1993	1981 vs 1989	1989 vs 1993	1981 vs 1993	Net shift out of 35-40 hours	
									1981 vs 1989	1981 vs 1993
15-24										
1-29	8.9	12.4	17.7	15.1	25.0	2.7	9.9	12.6	4.8	16.8
30-34	5.1	6.4	8.2	8.5	10.6	2.1	2.1	4.2		
35-40	81.3	76.4	68.6	69.0	57.1	-7.4	-11.9	-19.3	-7.4	-19.3
41-49	3.1	3.1	4.0	5.1	4.3	2.0	- 0.8	1.2		
50+	1.6	1.7	1.5	2.3	3.1	0.6	0.8	1.4	2.6	2.6
25-34										
1-29	17.3	19.7	20.3	17.4	19.2	-2.3	1.8	- 0.5	-2.3	0.2
30-34	6.4	6.9	6.4	6.9	7.6	0.0	0.7	0.7		
35-40	71.2	68.2	67.3	68.9	64.8	0.7	- 4.1	- 3.4	0.7	- 3.4
41-49	3.0	3.1	3.1	3.6	4.6	0.5	1.0	1.5		
50+	2.1	2.1	3.1	3.3	3.9	1.2	0.6	1.8	1.7	3.3
35-44										
1-29	23.2	23.7	23.7	20.5	22.2	-3.2	1.7	- 1.5	-3.3	- 0.4
30-34	6.4	7.8	7.7	7.7	8.9	-0.1	1.2	1.1		
35-40	64.2	63.2	61.1	64.0	61.9	0.8	- 2.1	- 1.3	0.8	- 1.3
41-49	3.2	3.0	3.9	3.7	3.3	0.7	- 0.4	0.3		
50+	3.1	2.4	3.7	4.2	3.8	1.8	- 0.4	1.4	2.5	1.7
45-54										
1-29	21.9	25.7	25.8	21.9	22.2	-3.8	0.3	- 3.5	-2.5	- 3.0
30-34	6.9	7.4	7.2	8.7	7.9	1.3	- 0.8	0.5		
35-40	65.6	61.6	60.9	62.1	61.1	0.5	- 1.0	- 0.5	0.5	- 0.5
41-49	3.1	3.2	2.9	3.4	4.1	0.2	0.7	0.9		
50+	2.5	2.2	3.2	3.9	4.7	1.7	0.8	2.5	1.9	3.4
55-64										
1-29	22.3	24.5	27.9	31.5	31.4	7.0	- 0.1	6.9	7.6	10.0
30-34	7.7	6.9	8.0	7.5	10.0	0.6	2.5	3.1		
35-40	64.6	63.6	58.2	54.8	53.3	-8.8	- 1.5	-10.3	-8.8	-10.3
41-49	2.8	2.6	2.4	2.9	2.5	0.3	- 0.4	- 0.1		
50+	2.6	2.3	3.5	3.3	2.8	1.0	- 0.5	0.5	1.3	0.4

Table 7 : Percentage distribution of men by hours worked in the main job, by education level, 1976, 1981, 1985 and 1989.

	1976	1981	1985	1989	1981 -89	Net shift out of standard workweek 1981-1989
None or elementary						
1-29	1.4	2.2	3.8	3.5	1.3	2.5
30-34	1.2	1.5	2.0	2.7	1.2	
35-40	75.4	76.3	72.9	71.3	-5.0	-5.0
41-49	13.1	11.4	12.3	12.6	1.2	
50+	9.0	8.6	9.0	9.9	1.3	2.5
9-13 years						
1-29	1.8	2.4	3.5	2.6	0.2	0.9
30-34	1.2	1.6	2.2	2.3	0.7	
35-40	78.8	77.9	75.3	74.6	-3.3	-3.3
41-49	10.4	9.8	9.5	9.9	0.1	
50+	7.9	8.2	9.5	10.6	2.4	2.5
Post secondary¹						
1-29	1.6	2.0	3.3	2.0	0.0	-0.3
30-34	1.8	2.2	2.4	1.9	-0.3	
35-40	81.0	80.6	76.3	75.4	-5.2	-5.2
41-49	8.0	7.4	8.3	9.5	2.1	
50+	7.6	7.8	9.7	11.2	3.4	5.5
University degree						
1-29	2.2	1.9	2.4	2.2	0.3	-1.3
30-34	3.8	4.0	2.4	2.4	-1.6	
35-40	70.2	71.8	68.6	65.7	-6.1	-6.1
41-49	8.4	7.2	9.0	10.0	2.8	
50+	15.3	15.1	17.6	19.7	4.6	7.4

1. Includes the categories "some post-secondary" and "post-secondary certificate or diploma".

Table 8 : Percentage distribution of men by hours worked in the main job, by age and education, 1976, 1981, 1985 and 1989.

	1976	1981	1985	1989	1981 -89	Net shift out of standard workweek 1981-1989
Men aged 15 to 34						
9-13 years						
1-29	2.1	3.3	4.7	3.5	0.2	1.7
30-34	1.5	1.5	2.8	3.0	1.5	
35-40	76.8	75.6	71.9	71.4	-4.2	-4.2
41-49	12.0	10.8	10.3	11.3	0.5	
50+	7.7	8.9	10.3	10.9	2.0	2.5
University degree						
1-29	2.2	2.3	3.2	2.4	0.1	-0.9
30-34	3.8	3.5	2.9	2.5	-1.0	
35-40	72.6	74.1	70.9	69.7	-4.4	-4.4
41-49	8.4	6.6	8.7	8.2	1.6	
50+	12.9	13.5	14.3	17.2	3.7	5.3
Men aged 35 to 54						
9-13 years						
1-29	0.9	1.0	1.7	1.2	0.2	-0.1
30-34	0.7	1.6	1.6	1.3	-0.3	
35-40	81.1	80.5	79.2	78.3	-2.2	-2.2
41-49	8.5	8.9	8.7	8.5	-0.4	
50+	8.8	8.0	8.8	10.7	2.7	2.3
University degree						
1-29	1.8	1.1	1.7	1.9	0.8	-2.1
30-34	3.7	5.0	2.1	2.1	-2.9	
35-40	67.4	70.2	68.4	63.5	-6.7	-6.7
41-49	8.7	7.2	8.6	11.2	4.0	
50+	18.5	16.6	19.3	21.3	4.7	8.7

Table 9 : Percentage distribution of women by hours worked in the main job, by education level, 1976, 1981, 1985 and 1989.

	1976	1981	1985	1989	1981 -89	Net shift out of standard workweek 1981-1989
None or elementary						
1-29	19.2	20.8	22.5	23.0	2.2	3.5
30-34	6.3	7.9	9.6	9.2	1.3	
35-40	66.6	64.0	61.4	61.3	-2.7	-2.7
41-49	5.0	4.3	3.8	3.2	-1.1	
50+	2.9	2.9	2.7	3.4	0.5	-0.6
9-13 years						
1-29	17.1	20.4	22.9	20.7	0.3	1.1
30-34	6.3	7.4	7.5	8.2	0.8	
35-40	72.2	68.2	64.9	65.7	-2.5	-2.5
41-49	2.9	2.6	2.9	3.4	0.8	
50+	1.6	1.4	1.9	2.0	0.6	1.4
Post secondary¹						
1-29	17.8	20.0	22.1	19.3	-0.7	0.8
30-34	5.9	6.1	6.8	7.6	1.5	
35-40	72.3	69.6	66.3	67.2	-2.4	-2.4
41-49	2.1	2.6	2.9	3.3	0.7	
50+	1.9	1.8	2.0	2.6	0.8	1.5
University degree						
1-29	14.4	17.4	18.5	15.8	-1.6	-2.6
30-34	7.1	6.8	6.2	5.8	-1.0	
35-40	68.1	64.8	60.2	62.7	-2.1	-2.1
41-49	3.7	5.2	5.9	6.1	0.9	
50+	6.7	5.9	9.2	9.7	3.8	4.7

1. Includes the categories "some post-secondary" and "post-secondary certificate or diploma".

Table 10 : Percentage distribution of women by hours worked in the main job, by age and education, 1976, 1981, 1985 and 1989.

	1976	1981	1985	1989	1981 -89	Net shift out of standard workweek 1981-1989
Women aged 15 to 34						
9-13 years						
1-29	12.7	17.0	20.7	17.9	0.9	1.5
30-34	5.8	7.5	7.4	8.1	0.6	
35-40	77.3	71.5	67.2	68.4	-3.1	-3.1
41-49	3.1	2.9	3.1	3.8	0.9	
50+	1.2	1.2	1.6	1.9	0.7	1.6
University degree						
1-29	11.2	15.0	15.0	12.4	-2.6	-2.1
30-34	6.9	4.8	5.0	5.3	0.5	
35-40	72.3	68.9	65.9	66.7	-2.2	-2.2
41-49	3.9	5.1	5.7	6.5	1.4	
50+	5.6	6.2	8.4	9.1	2.9	4.3
Women aged 35 to 54						
9-13 years						
1-29	23.1	25.1	24.9	21.5	-3.6	-2.7
30-34	6.9	7.5	7.5	8.4	0.9	
35-40	65.1	63.6	62.8	64.9	1.3	1.3
41-49	2.7	2.3	2.8	3.1	0.8	
50+	2.2	1.6	2.2	2.1	0.5	1.3
University degree						
1-29	19.9	21.8	22.6	18.3	-3.5	-7.1
30-34	7.3	10.1	7.6	6.5	-3.6	
35-40	61.6	57.0	53.9	59.0	2.0	2.0
41-49	4.2	5.6	6.2	5.9	0.3	
50+	7.1	5.5	9.7	10.4	4.9	5.2

Table 11 : Percentage distribution of men by weekly hours worked in the main job, by industry, 1981, 1989 and 1993.

	1976	1981	1985	1989	1993	1981 - 89	1989 - 93	1981 - 93
Forestry and Mining								
1-29	0.2	0.3	0.4	0.4	0.7	0.1	0.3	0.4
30-34	0.5	1.1	0.7	0.5	0.7	-0.6	0.2	- 0.4
35-40	76.8	75.2	71.6	71.0	59.7	-4.2	-11.3	-15.5
41-49	11.4	10.8	11.8	12.9	16.6	2.1	3.7	5.8
50+	11.2	12.6	15.5	15.3	22.4	2.7	7.1	9.8
Construction								
1-29	0.8	1.2	2.7	1.5	4.0	0.3	2.5	2.8
30-34	1.1	1.5	2.2	2.8	5.1	1.3	2.3	3.6
35-40	73.6	74.7	70.0	67.6	63.7	-7.1	-3.9	-11.0
41-49	11.7	10.2	9.8	11.8	10.4	1.6	-1.4	0.2
50+	12.7	12.5	15.3	16.4	16.9	3.9	0.5	4.4
Manufacturing								
1-29	0.5	0.6	1.0	0.7	1.3	0.1	0.6	0.7
30-34	0.6	0.8	1.2	0.9	1.0	0.1	0.1	0.2
35-40	85.7	84.9	82.4	82.5	78.6	-2.4	-3.9	- 6.3
41-49	9.8	9.2	10.1	9.9	11.4	0.7	1.5	2.2
50+	3.5	4.4	5.3	6.0	7.8	1.6	1.8	3.4
Distributive Services								
1-29	1.3	2.0	2.6	2.2	4.4	0.2	2.2	2.4
30-34	1.3	1.4	1.7	2.1	2.1	0.7	0.0	0.7
35-40	78.9	78.9	75.7	72.2	69.3	-6.7	-2.9	- 9.6
41-49	9.5	9.0	8.6	9.7	9.6	0.7	-0.1	0.6
50+	9.0	8.7	11.5	13.8	14.7	5.1	0.9	6.0
Business Services								
1-29	1.7	1.6	3.5	1.9	6.1	0.3	4.2	4.5
30-34	2.1	3.3	2.3	2.1	1.8	-1.2	-0.3	- 1.5
35-40	77.0	75.7	68.7	69.9	67.1	-5.8	-2.8	- 8.6
41-49	7.9	7.6	10.6	9.4	8.1	1.8	-1.3	0.5
50+	11.4	11.8	15.0	16.7	17.0	4.9	0.3	5.2
Consumer Services								
1-29	4.7	6.5	8.1	5.7	10.7	-0.8	5.0	4.2
30-34	2.0	2.2	3.6	3.7	6.1	1.5	2.4	3.9
35-40	65.6	66.7	65.6	63.8	59.2	-2.9	-4.6	- 7.5
41-49	17.1	13.5	11.7	13.1	10.9	-0.4	-2.2	- 2.6
50+	10.7	11.1	10.9	13.7	13.3	2.6	-0.4	2.2
Public Services								
1-29	2.6	2.5	3.9	3.5	5.8	1.0	2.3	3.3
30-34	3.8	4.4	3.7	3.3	3.7	-1.1	0.4	- 0.7
35-40	79.6	79.4	76.8	76.6	75.6	-2.8	-1.0	- 3.8
41-49	5.9	5.7	6.3	6.7	5.9	1.0	-0.8	0.2
50+	8.1	8.0	9.4	9.9	9.0	1.9	-0.9	1.0

Table 12 : Percentage distribution of women by weekly hours worked in the main job, by industry, 1981, 1989 and 1993.

	1976	1981	1985	1989	1993	1981 - 89	1989 - 93	1981 - 93
Manufacturing								
1-29	5.8	5.3	6.5	7.0	7.0	1.7	0.0	1.7
30-34	2.6	2.8	3.8	3.3	3.8	0.5	0.5	1.0
35-40	86.7	87.1	84.6	83.1	81.1	-4.0	-2.0	-6.0
41-49	3.7	4.1	4.0	4.2	6.2	0.1	2.0	2.1
50+	1.2	0.7	1.1	2.4	1.9	1.7	-0.5	1.2
Distributive Services								
1-29	14.0	14.7	17.4	13.4	15.6	-1.3	2.2	0.9
30-34	3.7	4.0	4.1	6.2	4.4	2.2	-1.8	0.4
35-40	78.9	77.7	74.0	75.2	73.1	-2.5	-2.1	-4.6
41-49	2.5	2.7	2.6	2.7	3.3	0.0	0.6	0.6
50+	0.9	1.0	1.9	2.6	3.6	1.6	1.0	2.6
Business Services								
1-29	11.2	14.0	15.2	14.1	16.2	0.1	2.1	2.2
30-34	5.5	5.2	4.5	5.3	6.2	0.1	0.9	1.0
35-40	80.1	76.9	75.2	74.2	70.8	-2.7	-3.4	-6.1
41-49	1.4	1.7	1.9	2.7	3.6	1.0	0.9	1.9
50+	1.8	2.2	3.2	3.7	3.3	1.5	-0.4	1.1
Consumer Services								
1-29	29.8	30.2	31.8	27.1	30.7	-3.1	3.6	0.5
30-34	9.1	11.5	11.7	11.9	12.8	0.4	0.9	1.3
35-40	54.0	51.8	48.9	53.1	48.6	1.3	-4.5	-3.2
41-49	4.9	3.9	4.5	5.4	4.4	1.5	-1.0	0.5
50+	2.4	2.6	3.1	2.6	3.5	0.0	0.9	0.9
Public Services								
1-29	16.3	22.4	23.8	22.5	24.4	0.1	1.9	2.0
30-34	6.8	7.0	7.1	7.9	8.8	0.9	0.9	1.8
35-40	72.3	66.4	63.3	62.7	59.3	-3.7	-3.4	-7.1
41-49	2.0	2.3	2.7	2.9	3.0	0.6	1.0	1.6
50+	2.6	1.9	3.1	4.0	4.5	2.1	0.5	2.6

Table 13 : Percentage distribution of men by weekly hours worked in the main job, by occupation, 1985, 1989 and 1993.

	1985	1989	1993	1985 - 89	1989 - 93	1985 - 93
Managers						
1-29	0.8	0.6	1.0	-0.2	0.4	0.2
30-34	1.6	1.3	0.8	-0.3	-0.5	-0.8
35-40	68.0	63.1	61.2	-4.9	-1.9	-6.8
41-49	10.7	11.2	11.7	0.5	0.5	1.0
50+	18.9	23.9	25.3	5.0	1.4	6.4
Natural/Social Sciences						
1-29	1.1	1.1	1.5	0.0	0.4	0.4
30-34	1.1	0.9	1.4	-0.2	0.5	0.3
35-40	82.6	79.4	80.2	-3.2	0.8	-2.4
41-49	5.8	7.1	6.1	1.3	-1.0	0.3
50+	9.5	11.4	10.8	1.9	-0.6	1.3
Teaching/Medicine						
1-29	5.6	5.4	8.7	-0.2	3.3	3.1
30-34	4.7	4.9	5.9	0.2	1.0	1.2
35-40	64.2	64.4	61.0	0.2	-3.4	-3.2
41-49	7.8	8.5	8.2	0.7	-0.3	0.4
50+	17.8	16.8	16.2	-1.0	-0.6	-1.6
Clerical related						
1-29	4.0	2.6	8.6	-1.4	6.0	4.6
30-34	2.1	3.1	3.5	1.0	0.4	1.4
35-40	85.5	85.3	79.0	-0.2	-6.3	-6.5
41-49	6.2	6.3	6.5	0.1	0.2	0.3
50+	2.2	2.8	2.4	0.6	-0.4	0.2
Sales						
1-29	5.4	3.1	5.4	-1.7	1.7	0.0
30-34	3.8	2.6	4.4	-1.2	1.8	0.6
35-40	66.2	66.4	62.3	0.2	-4.1	-3.9
41-49	10.5	11.4	10.6	0.9	-0.8	0.1
50+	14.2	16.6	17.1	2.4	0.5	2.9
Services						
1-29	9.3	6.2	13.1	-3.1	6.9	3.8
30-34	4.3	5.0	5.8	0.7	0.8	1.5
35-40	70.1	73.8	66.7	3.7	-7.1	-3.4
41-49	10.8	10.0	8.9	-0.8	-1.1	-1.9
50+	5.5	5.0	5.5	-0.5	0.5	0.0
Processing						
1-29	1.2	0.9	1.5	-0.3	0.6	0.3
30-34	0.9	0.7	1.4	-0.2	0.7	0.5
35-40	83.8	83.0	80.6	-0.8	-2.4	-3.2
41-49	10.8	10.9	11.4	0.1	0.5	0.6
50+	3.3	4.5	5.2	1.2	0.7	1.9
Other						
1-29	4.0	3.1	6.4	-0.9	3.3	2.4
30-34	2.6	2.7	3.9	0.1	1.2	1.3
35-40	69.7	68.0	63.9	-1.7	-4.1	-5.8
41-49	9.3	10.6	9.6	1.3	-1.0	0.3
50+	14.5	15.6	16.3	1.1	0.7	1.8

Table 14 : Percentage distribution of women by weekly hours worked in the main job, by occupation, 1985, 1989 and 1993.

	1985	1989	1993	1985 - 89	1989 - 93	1985 - 93
Managers						
1-29	7.8	6.3	8.8	-1.5	2.5	1.0
30-34	3.6	3.6	4.0	0.0	0.4	0.4
35-40	76.5	76.6	72.9	0.1	-3.7	-3.6
41-49	5.5	6.9	6.5	1.4	-0.4	1.0
50+	6.6	6.6	7.8	0.0	1.2	1.2
Natural/Social Sciences						
1-29	9.7	11.1	16.0	1.4	4.9	6.3
30-34	4.5	6.7	4.7	2.2	-2.0	0.2
35-40	80.0	74.0	69.2	-6.0	-4.8	-10.8
41-49	2.3	4.4	4.5	2.1	0.1	2.2
50+	3.4	3.8	5.6	0.4	1.8	2.2
Teaching/Medicine						
1-29	27.4	25.0	26.3	-2.4	1.3	-1.1
30-34	7.7	9.2	9.7	1.5	0.5	2.0
35-40	55.5	55.7	53.3	0.2	-2.4	-2.2
41-49	4.5	4.1	4.0	-0.4	-0.1	-0.5
50+	4.9	6.1	6.7	1.2	0.6	1.8
Clerical related						
1-29	20.0	18.9	21.3	-1.1	2.4	1.3
30-34	5.8	6.6	8.6	0.8	2.0	2.8
35-40	72.0	71.6	67.4	-0.4	-4.2	-4.6
41-49	1.5	2.0	2.1	0.5	0.1	0.6
50+	0.7	0.9	0.7	0.2	-0.2	0.0
Sales						
1-29	35.8	25.6	32.7	-10.2	7.1	-3.1
30-34	11.2	12.1	12.1	0.9	0.0	0.9
35-40	45.4	54.2	48.2	8.8	-6.0	2.8
41-49	3.8	3.1	3.7	-0.7	0.6	-0.1
50+	3.8	5.0	3.3	1.2	-1.7	-0.5
Services						
1-29	33.2	32.2	33.6	-1.0	1.4	0.4
30-34	12.6	12.0	12.8	-0.6	0.8	0.2
35-40	47.8	49.2	47.8	1.4	-1.4	0.0
41-49	3.6	3.9	3.5	0.3	-0.4	-0.1
50+	2.8	2.7	2.3	-0.1	-0.4	-0.5
Processing						
1-29	6.2	5.0	7.5	-1.2	2.5	1.3
30-34	5.3	3.1	4.4	-2.2	1.3	-0.9
35-40	82.8	87.0	78.8	4.2	-8.2	-4.0
41-49	5.0	3.4	7.6	-1.6	4.2	2.6
50+	0.7	1.6	1.6	0.9	0.0	0.9
Other						
1-29	23.9	20.2	23.3	-3.7	3.1	-0.6
30-34	6.5	8.1	7.9	1.6	-0.2	1.4
35-40	57.5	57.3	57.1	-0.2	-0.2	-0.4
41-49	5.3	7.4	4.9	2.1	-2.5	-0.4
50+	6.8	7.0	6.8	0.2	-0.2	0.0

Table 15 : Ratio of supplementary labour income¹ to wages and salaries, by industry, 1961, 1976 and 1992.

	1961	1976	1992
Agriculture	0.2 %	2.1 %	4.9 %
Forestry	6.6 %	9.3 %	15.2 %
Fishing	1.7 %	4.7 %	8.6 %
Mining	7.0 %	10.6 %	14.3 %
Manufacturing	5.6 %	9.8 %	16.2 %
Construction	3.4 %	6.2 %	11.3 %
Transport, Communication and Other Utilities	6.9 %	10.9 %	15.7 %
Trade	2.9 %	6.5 %	11.1 %
Finance, Insurance and Real Estate	3.3 %	6.0 %	9.5 %
Commercial Services	2.7 %	5.6 %	9.7 %
Education	5.1 %	11.5 %	15.6 %
Hospitals and Welfare	2.6 %	9.1 %	11.2 %
Religious Organizations	1.1 %	2.5 %	2.9 %
Private Households	0.2 %	0.6 %	0.8 %
Federal Administration	10.1 %	12.6 %	17.2 %
Provincial Administration	4.7 %	8.8 %	19.4 %
Municipal Administration	5.7 %	14.3 %	19.9 %
Total	4.8 %	8.6 %	13.1 %

Source : Labour Division, Statistics Canada.

1. Supplementary labour income is employer contribution to employee welfare pension, workers' compensation and unemployment insurance programs.

Appendix 1 : Responsiveness of Short and Long Hours to the Business Cycle, 1976-1993* - Model 1.

Men

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	0.055 (0.277)	0.773* (0.340)	20.885* (0.760)	9.976* (0.481)
Unemployment rate ^b	0.257* (0.033)	0.423* (0.041)	-0.256* (0.091)	-0.070 (0.576)
Time trend starting in 1982	0.127* (0.016)	0.150* (0.020)	0.378* (0.044)	0.305* (0.028)
Adjusted R ²	0.933	0.949	0.815	0.892
Durbin-Watson	1.768	1.749	1.183	1.260
N	18	18	18	18

Women

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	12.540* (1.899)	18.267* (2.257)	6.219* (0.723)	2.498* (0.451)
Unemployment rate ^b	0.756* (0.198)	0.866* (0.235)	-0.056 (0.075)	-0.004 (0.047)
Time trend starting in 1982	0.157* (0.054)	0.284* (0.065)	0.206* (0.021)	0.133* (0.013)
Adjusted R ²	0.568	0.659	0.850	0.859
Durbin-Watson	0.668	0.555	1.791	1.694
N	18	18	18	18

a. Numbers in parentheses are standard errors.

b. Sex-specific average unemployment rate for the current year.

*. Statistically significant at the 5 % level (two-tailed test).

Appendix 1 : Responsiveness of Short and Long Hours to the Business Cycle, 1976-1993* - Model 2.

Men

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	-0.181 (0.281)	0.504 (0.309)	20.140* (0.900)	9.407* (0.508)
Unemployment rate ^b	0.232* (0.036)	0.389* (0.040)	-0.312* (0.116)	-0.129 (0.066)
Time trend starting in 1976	0.106* (0.014)	0.129* (0.015)	0.304* (0.045)	0.254* (0.025)
Adjusted R ²	0.927	0.956	0.728	0.875
Durbin-Watson	1.535	1.835	0.909	1.175
N	18	18	18	18

Women

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	12.259* (1.562)	17.845* (1.670)	6.030* (0.791)	2.370* (0.449)
Unemployment rate ^b	0.698* (0.163)	0.773* (0.175)	-0.106 (0.083)	-0.037 (0.047)
Time trend starting in 1976	0.160* (0.036)	0.267* (0.039)	0.164* (0.018)	0.107* (0.010)
Adjusted R ²	0.709	0.814	0.822	0.861
Durbin-Watson	0.859	0.789	1.706	1.983
N	18	18	18	18

a. Numbers in parentheses are standard errors.

b. Sex-specific average unemployment rate for the current year.

*. Statistically significant at the 5 % level (two-tailed test).

Appendix 1 : Responsiveness of Short and Long Hours to the Business Cycle, 1976-1993* - Model 3.

Men

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	2.236* (0.108)	4.356* (0.160)	18.666* (0.196)	9.340* (0.129)
Deviation of real GDP from its trend ^b	-0.029* (0.005)	-0.046* (0.007)	0.039* (0.009)	0.016* (0.006)
Time trend starting in 1982	0.165* (0.018)	0.215* (0.027)	0.347* (0.033)	0.300* (0.021)
Adjusted R ²	0.894	0.883	0.873	0.920
Durbin-Watson	1.008	0.746	1.456	1.484
N	18	18	18	18

Women

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	19.914* (0.388)	26.724* (0.448)	5.640* (0.116)	2.445* (0.076)
Deviation of real GDP from its trend ^b	-0.048* (0.018)	-0.057* (0.021)	0.010 (0.005)	0.004 (0.004)
Time trend starting in 1982	0.135* (0.064)	0.257* (0.074)	0.212* (0.019)	0.135* (0.013)
Adjusted R ²	0.417	0.568	0.877	0.870
Durbin-Watson	0.418	0.373	2.348	2.003
N	18	18	18	18

a. Numbers in parentheses are standard errors.

b. The trend in real GDP is calculated over the 1961-1993 period.

*. Statistically significant at the 5 % level (two-tailed test).

Appendix 1 : Responsiveness of Short and Long Hours to the Business Cycle, 1976-1993^a - Model 4.

Men

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	1.644* (0.129)	3.546* (0.168)	17.656* (0.390)	8.365* (0.219)
Deviation of real GDP from its trend ^b	-0.027* (0.004)	-0.044* (0.005)	0.041* (0.013)	0.018* (0.007)
Time trend starting in 1976	0.137* (0.012)	0.183* (0.015)	0.264* (0.036)	0.239* (0.020)
Adjusted R ²	0.929	0.940	0.764	0.891
Durbin-Watson	1.429	1.309	0.901	1.206
N	18	18	18	18

Women

Dependent variable is percent working :

Independent variables	1-29 hours	1-34 hours	41 hours or more	50 hours or more
Constant	19.059* (0.484)	25.407* (0.503)	4.956* (0.190)	1.989* (0.110)
Deviation of real GDP from its trend ^b	-0.043* (0.016)	-0.051* (0.016)	0.012 (0.006)	0.005 (0.004)
Time trend starting in 1976	0.151* (0.044)	0.255* (0.046)	0.169* (0.017)	0.110* (0.010)
Adjusted R ²	0.573	0.743	0.844	0.874
Durbin-Watson	0.511	0.507	2.051	2.307
N	18	18	18	18

a. Numbers in parentheses are standard errors.

b. The trend in real GDP is calculated over the 1961-1993 period.

*. Statistically significant at the 5 % level (two-tailed test).

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